

Appln No. 09/888,242

Amdt date November 24, 2004

Reply to Office action of September 21, 2004

**REMARKS/ARGUMENTS**

Claims 1-24 are pending. Claims 1, 5-6, 11-20, and 22-23 are amended.

Claims 18 and 20-24 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 31, 32, 36, 37, 39 and 40, respectively, of copending Application No. 09/819,864. In response to the above provisional rejection, Applicants are canceling claims 31, 32, 36, 37, 39 and 40, of the 09/819,864 Application, in a response to the 9/21/04 Office action for that application.

Claims 1-24 are rejected under 35 U.S.C. 102(e) as being anticipated by van Nee (U.S. 6,175,550). Applicants submit that all of the claims currently pending in this application are patentably distinguishable over the cited references, and reconsideration and allowance of this application are respectfully requested.

Amended independent claim 1 includes, among other limitations, "defining an adjustable center frequency and constellation size for each of said multiple bands," and "varying the adjustable center frequency and constellation size for defining a combination of an optimum center frequency and an optimum constellation size at which bit rate and/or margin is enhanced in accordance with said response characteristic." Van Nee does not teach, nor does it suggest the above limitations.

Rather, van Nee describes a scaleable OFDM system for scaling of the operating parameters and/or characteristics. OFDM (Orthogonal Frequency Division Multiplexing) is defined as

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"a block-oriented modulation scheme that maps  $N$  data symbols into  $N$  orthogonal carriers separated by a distance of  $1/T$ , where  $T$  is the block period." (Col. 1, lines 15-17, underlining added.). "The scaleable OFDM systems can be characterized by various operating parameters, including the following: number of carriers ( $N$ ); symbol duration ( $T_s$ ); number of bits per symbol per carrier ( $m$ ); forward error correction coding scheme; coding rate; and the fraction of the symbol duration that is used as guard time. By varying these parameters, various operating characteristics can be scaled . . . ." (Col. 3, lines 3-14, underlining added).

There is no teaching or suggestion in van Nee about "an adjustable center frequency and constellation size for each of said multiple bands," and "varying the adjustable center frequency and constellation size for defining a combination of an optimum center frequency and an optimum constellation size."

Additionally, although van Nee mentions that the OFDM system "can be used to implement multiple access of multi-rate systems by dynamically scaling the number of carriers" and that the "remote station 74 could be sending on just one carrier, another remote station 74 on 4 other carriers, while a third remote station 74 could be sending on yet another 2 carriers, all at the same time," (Col. 8, lines 21-27), it emphasizes that "the base station 72 of this particular embodiment should be capable of receiving and transmitting at all carriers simultaneously." (Col. 8, lines 34-36, underlining added). Therefore, even in the above embodiment, the OFDM system of van Nee remains to be a multi-carrier modulation (OFDM) system that

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inherently has a fixed center frequency for each sub-channel. As a result, the OFDM system of van Nee does not include "an adjustable center frequency and constellation size for each of said multiple bands," and "varying the adjustable center frequency and constellation size for defining a combination of an optimum center frequency and an optimum constellation size," as required by the independent claim 1. Consequently, independent claim 1 is not anticipated by van Nee.

Similarly, amended independent claim 5 includes, among other limitations, "varying said parametric set by varying a constellation vector including an adjustable center frequency and an adjustable constellation size to increase a signal-noise-ratio margin without falling below a total target bit rate for said multiple bands." As explained above, the OFDM system of van Nee does not include the above limitation. Accordingly, independent claim 5 is not anticipated by van Nee either.

Likewise, amended independent claim 11 includes, among other limitations, "defining an adjustable center frequency for each of said multiple bands, and "defining an optimal center frequency and constellation size in accordance with at least one of said constellation size and signal-noise-ratio margin." Again, as discussed above, the OFDM system of van Nee does not include the above limitation. Thus, independent claim 11 is not anticipated by van Nee either.

The remaining amended independent claims 12, 18, and 20 include similar limitations that are not taught or suggested by van Nee. Therefore, these claims are also patentable over van Nee.

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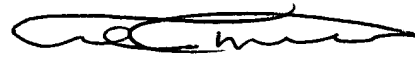
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In short, independent claims 1, 5, 11, 12, 18, and 20 define a novel and unobvious invention over the cited references. Dependent claims 2-4, 6-10, 13-17 and 21-24 are dependent from claims 1, 5, 12 and 20, respectively and therefore include all the limitations of their respective independent claims and additional limitations therein. Accordingly, these claims are also allowable over the cited references, as being dependent from allowable independent claims and for the additional limitations they include therein.

In view of the foregoing amendments and remarks, it is respectfully submitted that this application is now in condition for allowance, and accordingly, reconsideration and allowance are respectfully requested.

Respectfully submitted,  
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